
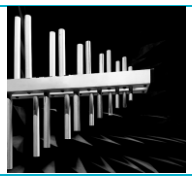
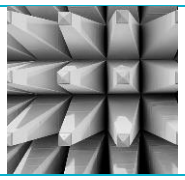

CTC advanced
member of RWTÜV group

Bundesnetzagentur

BNetzA-CAB-02/21-102

DAkkS Deutsche Akkreditierungsstelle D-PL-12076-01-03

SAR Test exclusion documentation according to FCC KDB 447498, RSS-102

Report identification number: 1-9907/19-01-11 Exclusion (FCC_ISED)

Kind of test item:	Radio Wave Receiver
Model name:	**RWR95.51**
FCC ID	MFFRWR9551G1
ISED number	5782A-RWR9551G1
HVIN (Hardware Version Identification Number)	RWR95.51-A-SP RWR95.51-R-SP RWR95.51-R-SP-PT RWR95.51-R-DP
PMN (Product Marketing Name)	RWR95.51
FVIN (Firmware Version Identification Number)	n/a
HMN (Host Marketing Name)	n/a

This report is electronically signed and valid without handwriting signature. For verification of the electronic signatures, the public keys can be requested at the testing laboratory.

Document authorised:

cn=Alexander Hnatovskiy, o=CTC advanced GmbH, ou=HNA-161129, email=Alexander.Hnatovskiy@ctcadvanced.com, c=DE
2019.10.29 15:57:40 +01'00'

Alexander Hnatovskiy
Lab Manager
Radio Communications & EMC

cn=Marco Scigliano, o=CTC advanced GmbH, ou=SCI-161125, email=marco.scigliano@ctcadvanced.com, c=DE
2019.10.29 15:56:37 +01'00'

Marco Scigliano
Testing Manager
Radio Communications & EMC

EUT technologies:

Technologies:	Antenna	Conducted output P_{max}	Max. gain	Min. pathloss:
IEEE 802.15.4 2400 – 2483.5 MHz	1	measured: max 4.6 dBm	-5.3 dBi	0 dB (if applicable)
IEEE 802.15.4 2400 – 2483.5 MHz	2	measured: max 2.7 dBm	1.8 dBi	0 dB (if applicable)

Note: Test results see CTC advanced test report 1-9907/19-01-05

SAR test exclusion according to KDB447498 (General RF Exposure Guidance v06)

Equation from Chapter 4.3.1: Standalone SAR test exclusion considerations page 11 and ff.

(1) Standalone SAR test exclusion for 100 MHz to 6 GHz at test separation distances ≤ 50mm

$$(Threshold_{1\text{-}g;10\text{-}g}) \times d_{seperation} / f^{0.5}$$

where

$Threshold_{1\text{-}g;10\text{-}g}$ is 3 for 1-g; 7.5 for 10-g
$d_{seperation}$ is the min. test separation distance; 5mm is used if the distance is less
f is the RF channel transmit frequency

The table below gives the calculated maximal power that could be used for source based time averaged conducted or radiated power, adjusted for tune up tolerance. If this is at or below the calculated value the DUT is exempted from SAR evaluation.

Antenna port	frequency [MHz]	$d_{separation}$ [mm]	$Threshold_{1\text{-}g}$	Powerlimit [mW]	$P_{max\text{-}declared}$		Exclusion
					[dBm]	[mW]	
1	2480.00	**5**	3	9.53	4.60	2.88	yes
2	2480.00	**5**	3	9.53	4.50	2.82	yes

SAR test exclusion according to RSS-102 Issue 5 Section 2.5.1/Table 1

The table below gives the calculated maximal power that could be used for source based time averaged conducted or radiated power, adjusted for tune up tolerance. If this is at or below the calculated value the DUT is exempted from SAR evaluation.

Antenna port	frequency [MHz]	$d_{separation}$ [mm]	tissue volume	Powerlimit [mW]	$P_{max\text{-}declared}$		Exclusion
					[dBm]	[mW]	
1	2480.00	**5**	1 g	4.00	4.60	2.88	yes
2	2480.00	**5**	1 g	4.00	4.50	2.82	yes

The limits above are defined for body worn application and therefore cover all use cases.